

We claim:

1. A radio station for transmitting signals, the radio station comprising:

a modulator modulating a signal to be transmitted;

a power amplifier connected to said modulator for amplifying the modulated signal and producing an output power and a test signal;

a summing device connected to said power amplifier for subtracting the test signal of the power amplifier from a reference signal to generate a control signal;

an antenna for transmitting and receiving the signals;

an impedance with a variable reactance being switched between said antenna and said power amplifier;

an analog-to-digital converter converting the control signal to a digital signal; and

a processor using the digital signal to change said variable reactance of said impedance.

2. The radio station according to claim 1, wherein said processor calculates an optimum value for the variable reactance of said impedance according to the digital signal.

3. The radio station according to claim 2, wherein said processor includes a table storing the optimum value for the variable reactance of said impedance for the digital signal and relating the stored optimum value to the respective digital signal and a respective output power of said power amplifier.

4. The radio station according to claim 3, wherein said processor compares the digital signal with stored values of the digital signal to determine the reactance of said impedance.

5. The radio station according to claim 2, including:

a directional coupler transferring a first part of the output power of said power amplifier as the test signal;

a power detector connected to said directional coupler and said summing device and receiving the first part of the output power, said power detector converting the first part of the output power of the power amplifier to a voltage;

said summing device subtracting the voltage from a reference voltage to generate a difference voltage; and

an integrator connected to said summing device, receiving the difference voltage, and integrating the difference voltage to generate the control signal and the power amplifier generating an output power according to the control signal.

6. The radio station according to claim 1, wherein said summing device subtracts a supply current of said power amplifier from a reference current to generate a difference current; and

an integrator is connected to said power amplifier for integrating the difference current to generate the control signal; and

said power amplifier generates the output power according to the control signal.

7. The radio station according to claim 1, wherein said power amplifier has a gain, said analog-digital converter converts a test voltage as the control signal of the power amplifier into the digital signal, and said processor adjusts the gain of said power amplifier and the variable reactance of the impedance according to the control signal.

8. The radio station according to claim 5, wherein said impedance includes a plurality of capacitors switched together in parallel connected by switches of a plurality of conductors switched together in parallel and a signal processing unit operating said switches according to a signal from said processor.

9. The radio station according to claim 5, wherein said impedance includes a capacitor, an inductor, and a signal processing unit for changing a capacitance of said capacitor and an inductance of said inductor by applying signals to said capacitor and said inductor.

10. The radio station according to claim 5, wherein said impedance includes a plurality of microstrip lines switched together in parallel and a signal processing unit sending signals placed between said microstrip lines according to a signal of said processor.